

HP Storage SAN Designer 1.6 User Guide

This document describes how to use the HP Storage SAN Designer user interface to design your Storage area Network. This document is intended for users and HP authorized service providers who use the HP Storage SAN Designer software to design and obtain SAN analysis reports.



Legal and notice information

© Copyright 2006, 2011 Hewlett-Packard Development Company, L.P.

Confidential computer software. Valid license from HP required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

Inte, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

Microsoft, Windows, Windows XP, and Windows NT are U.S. registered trademarks of Microsoft Corporation.

Java is a US trademark of Sun Microsystems, Inc.

Contents

1 Overview	7
Hardware and software requirements	7
2 Installing and removing SAN Designer	9
Supported operating systems	10
Installing SAN Designer	10
Repairing and upgrading SAN Designer	10
Removing SAN Designer	10
3 Using SAN Designer	11
Designing a SAN	11
Opening SAN Design file created in SAN Designer 1.5	12
Specifying server details	14
Adding a server group	15
Adding a blade system group	16
Modifying a server group	18
Modifying a blade system group	19
Deleting a server group	19
Deleting a blade system group	19
Specifying storage details	19
Adding a storage group	20
Modifying a storage group	21
Deleting a storage group	21
Specifying fabric details	21
Viewing SAN summary	23
Printing a SAN design	24
Saving a SAN design	25
Specifying contact information	26
Requesting reports	28
Viewing reports	29
Exiting from SAN Designer	31
4 Troubleshooting	33
5 Support and other resources	35
Contacting HP	35
Subscription service	35
Related information	35
Documents	35
Websites	35
Documentation feedback	36
Typographic conventions	36

Glossary 39

Index 41

Figures

1 HP Storage SAN Designer Welcome Screen	12
2 Opening and converting SAN Design file	13
3 Opening SAN Design containing obsolete SAN components	13
4 Opening SAN Design containing unsupported SAN components	14
5 Select Server/Blade window	15
6 Server group window	16
7 Blade system group window	18
8 Select Storage window	20
9 Select Fabric window	22
10 SAN Design Generation Error	23
11 View SAN Summary window	24
12 Print SAN Design window	25
13 Save SAN Design window	26
14 Contact Information window	27
15 Request Report window	28
16 Open Mail Attachment window	29
17 Decrypting Processed Report window	30
18 Decrypting Processed Report confirmation window	30
19 Browse for Folder window	31

Tables

1	Hardware requirements	7
2	Error codes, cause, and action	33
3	Document conventions	36

1 Overview

HP Storage SAN Designer (SAN Designer) provides a quick and easy way to design Storage Area Network (SAN), and obtain a SAN design along with a detailed list of SAN components.

SAN Designer 1.6 offers the following features:

- Provides support for 3PAR, P6300 and P6500 arrays.
- Provides an intuitive, simple, and easy to use, graphical user interface to design SANs
- Enables you to design SAN based on performance, cost, and future growth needs
- Enables you to compare your SAN with respect to cost and performance
- Simplifies initial SAN implementation and helps reduce SAN infrastructure cost and complexity
- Generates a report containing SAN topology, device list, and a high level summary of the SAN

Hardware and software requirements

This section discusses the hardware and software requirements for installing SAN Designer.

- 25 MB of free disk space for installation
- To use SAN Designer, the following applications must be installed on a host where SAN Designer is installed:
 - Java 2 Runtime Environment (JRE), SE v1.5 or later
 - Microsoft Excel viewer
 - Microsoft Visio viewer

Table 1 lists the hardware requirements.

Table 1 Hardware requirements

Item	Minimum	Recommended
Processor	Pentium III	Pentium IV
RAM	128 MB	256 MB

2 Installing and removing SAN Designer

Supported operating systems

Microsoft Windows system with any of the following operating systems:

- Microsoft Windows 2000 Server with Service Pack 4
- Microsoft Windows Server 2003 Standard or Enterprise edition
- Microsoft Windows XP Professional edition with Service Pack 3
- Microsoft Windows Server 2008 Enterprise Edition
- Microsoft Windows Server 2008 R2 Enterprise Edition
- Microsoft Windows Vista

Installing SAN Designer

To install SAN Designer, complete the following steps:

1. Download HP Storage SAN Designer 1.6 package from the following website:
<http://h18006.www1.hp.com/storage/networking/sandesigner.html>
2. Select a folder (for example, C:\temp) to save the SAN Designer install package.
3. Run the SANDesigner_Setup.exe install package to install SAN Designer files.

Review and accept the license agreement. By default, the SAN Designer files and documentation are installed in the following location:

C:\Program Files\Hewlett-Packard\HP SAN Designer

NOTE:

Ensure that JRE1.5 or later is installed on the host.

Repairing and upgrading SAN Designer

To repair or upgrade the currently installed SAN Designer software, complete the following steps:

1. Run the SANDesigner_Setup.exe setup executable file.
2. Select **Repair - Reinstall all features installed** to repair the current installation.

Removing SAN Designer

To remove SAN Designer software, complete the following steps:

1. Select **Start > Settings > Control Panel > Add or Remove Programs**.
2. Select **HP Storage SAN Designer v1.6.00** from the list of Currently installed programs.
3. Click **Change/Remove** to remove the software.

3 Using SAN Designer

HP Storage SAN Designer enables you to design a new SAN, or view and modify an existing SAN design. This chapter discusses the following topics:

- Designing a SAN
- Specifying server details
- Specifying storage details
- Specifying fabric details
- Viewing SAN summary
- Printing a SAN design
- Saving a SAN design

Using the SAN Designer involves performing the following tasks successfully:

1. Specify server details.
2. Specify storage details.
3. Specify fabric details.
4. View, print, and save the SAN design.
5. Email your SAN design requirements to HP for analysis. HP sends back the processed report consisting of SAN topology diagram, SAN inventory, and recommendations by email.



NOTE:

SAN Designer lists only the orderable (priceable) components.

Designing a SAN

Launch the HP Storage SAN Designer software by double-clicking the SAN Designer shortcut icon from the desktop. The SAN Designer welcome screen is displayed. [Figure 1](#) shows the SAN Designer welcome screen.

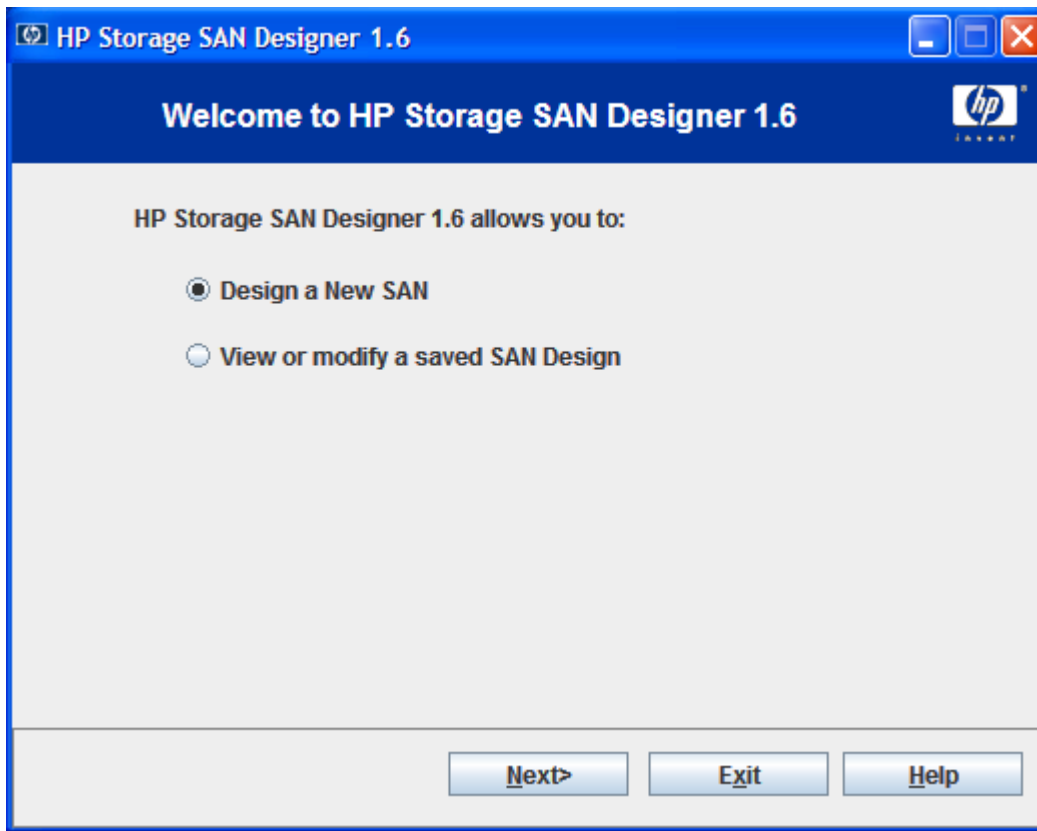


Figure 1 HP Storage SAN Designer Welcome Screen

The following options are available in SAN Designer welcome screen:

- **Design a New SAN** - Select this option to design a new SAN.
- **View or modify a saved SAN Design**- Select this option to view or modify a saved SAN design. SAN Designer enables you to save and modify a SAN Design. For more information on saving SAN designs, see [Saving a SAN design](#).

Click **Next** to view the Select Server/Blade window.

Opening SAN Design file created in SAN Designer 1.5

If you are opening a SAN Design file that was created using SAN Designer 1.5 and if it does not contain any obsolete or unsupported components, then you will be prompted to change the version of the file to the latest , as shown in [Figure 2](#). Click **Yes** to convert and open the file in SAN Designer 1.6.

 NOTE:

Once the file is converted to SAN Designer 1.6 format, you cannot open it using SAN Designer 1.5.



Figure 2 Opening and converting SAN Design file

If the SAN Design profile created using SAN Designer 1.5 contains obsolete SAN components, you will be prompted to redesign the SAN by replacing them with alternate SAN components, as shown in [Figure 3](#). Click **Yes** to remove obsolete SAN components and open the file in SAN Designer 1.6.



NOTE:

Once you have removed all the obsolete SAN components, you cannot open it using SAN Designer 1.5.

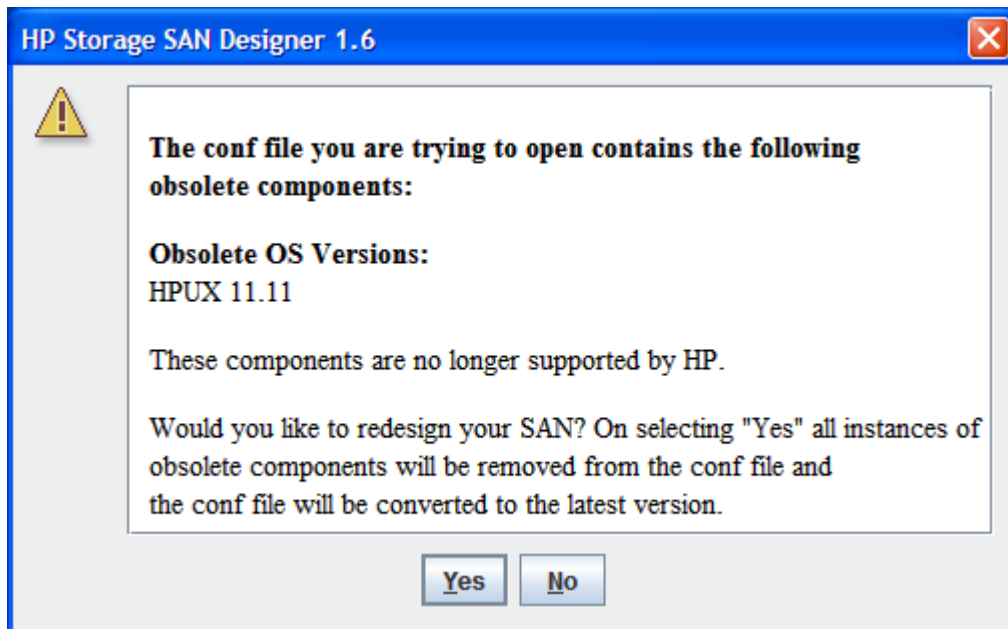


Figure 3 Opening SAN Design containing obsolete SAN components

If the SAN Design profile created using SAN Designer 1.5 contains SAN components that are not supported by SAN Designer 1.6, you will be prompted to redesign the SAN by replacing them with alternate SAN components, as shown in [Figure 4](#). Click **Yes** to remove unsupported SAN components and open the file in SAN Designer 1.6.



NOTE:

Once you have replaced all the unsupported SAN components, you cannot open it using SAN Designer 1.5.

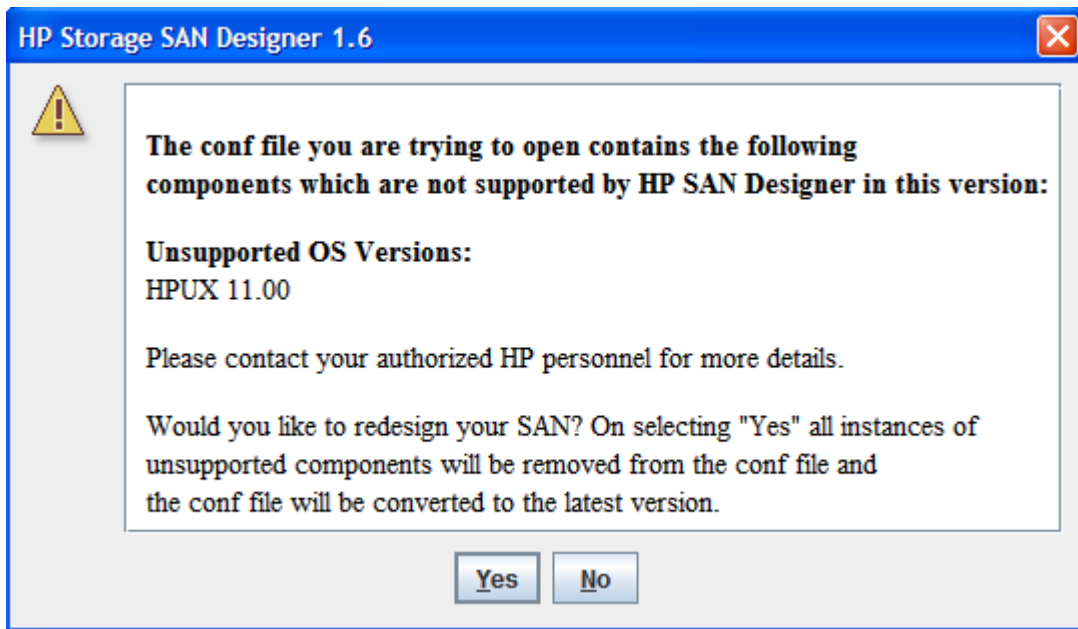


Figure 4 Opening SAN Design containing unsupported SAN components

Specifying server details

The Select Server/Blade window displays details of servers and blade systems in the SAN. [Figure 5](#) shows the Select Server/Blade window.

The Select Server/Blade window enables you to add, modify, and delete a server and a blade system group.

After entering server and blade details, click **Next** to enter storage details.

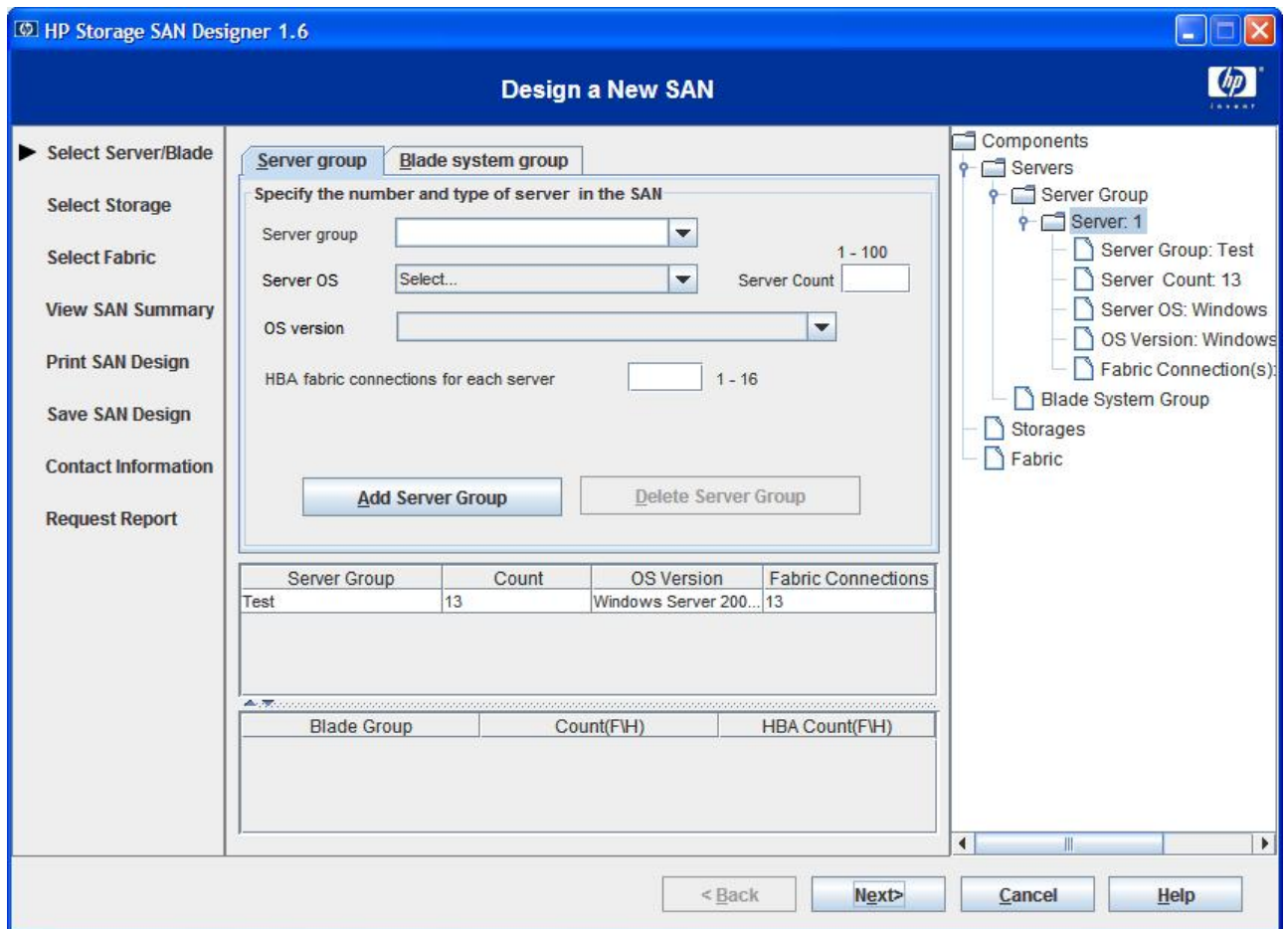


Figure 5 Select Server/Blade window

Adding a server group

To add a server group, complete the following steps:

1. On the Select Server/Blade window, click the **Server group** tab. The server group details are displayed, as shown in Figure 6.
2. Enter a convenient name (optional) for the server group in the **Server group** box.
3. Enter the number of servers in this group in the **Server Count** box. The number must be between 1 and 100.
4. Select the operating system from the **Server OS** drop-down list.
5. Select the operating system version for the selected OS from the **OS Version** drop-down list.
6. Enter the number of HBA fabric connections for each server in the server group in the **HBA fabric connections for each server** box. The number must be between 1 and 16.

- Click the **Add Server Group** button to add this group.

The server group is listed in the Server Group table.

Server group | Blade system group

Specify the number and type of server in the SAN

Server group: 1 - 100

Server OS: Select... Server Count:

OS version:

HBA fabric connections for each server: 1 - 16

Add Server Group | **Delete Server Group**

Server Group	Count	OS Version	Fabric Connections

Blade Group	Count(F\H)	HBA Count(F\H)

Figure 6 Server group window

Adding a blade system group

To add a blade system group, complete the following steps:

- On the Select Server/Blade window, click the **Blade system group** tab. The blade server group details are displayed, as shown in [Figure 7](#).
- Enter a convenient name (optional) for the blade system group in the **Blade system group** box.
- Select the blade system class from the **Blade system class** drop-down list.



NOTE:

Only C-Class blade servers are supported in SAN Designer 1.6.

4. In the **Full Height Server Blades** panel, enter the following details:
 - a. Enter the number of full height server blades for this group in the **Server blade count** box. The number must be between 1 and 100.
 - b. Enter the number of HBA fabric connections for each full height server blades in the **HBA count per server blade** box.

 NOTE:

Full height blade server can have a maximum of 3 HBAs for C-Class blade servers.

5. In the **Half Height Server Blades** panel, enter the following details:
 - a. Enter the number of half height server blades for this group in the **Server blade count** box. The number must be between 1 and 100.
 - b. Enter the number of HBA fabric connections for each half height server blades in the **HBA count per server blade** box.

 NOTE:

Half height blade server can have a maximum of 2 HBAs for C-Class blade servers.

- Click the **Add Blade System Group** button to add this group.

The blade system group is listed in the Blade Group table.



NOTE:

The table contains the full and half height blade server values. The rows in the table displays the values in full\half Height format. For example 12\1 under the heading "Count(F\H)" indicates a selection of 12 full heights and 1 half height blade server.

The screenshot shows the 'Blade system group' window. At the top, there are two tabs: 'Server group' and 'Blade system group', with the latter being selected and circled in red. Below the tabs, the 'Specify the blade system details' section contains two dropdown menus: 'Blade system group' and 'Blade system class'. Underneath, there are two sections: 'Full Height Server Blades' and 'Half Height Server Blades'. Each section has a 'Server blade count' input field with a range of '1 - 100' and an 'HBA count per server blade' input field. At the bottom of the form are two buttons: 'Add Blade System Group' and 'Delete Blade System Group'. Below the form are two tables. The first table has columns: 'Server Group', 'Count', 'OS Version', and 'Fabric Connections'. The second table has columns: 'Blade Group', 'Count(F\H)', and 'HBA Count(F\H)'.

Figure 7 Blade system group window

Modifying a server group

To modify a server group, complete the following steps:

- On the Select Server/Blade window, click the **Server group** tab to view the server group details.
- Select an added server group you want to modify. You can select the server group in one of the following ways:
 - From the Server group drop-down list
 - From the Server Group table
- Modify details of the server group per your requirements.

4. Click the **Add Server Group** button to save changes.

Modifying a blade system group

To modify a blade system group, complete the following steps:

1. On the Select Server/Blade window, click the **Blade system group** tab to view the blade system group details.
2. Select an added blade system group you want to modify. You can select the blade system group in one of the following ways:
 - From the Blade system group drop-down list
 - From the Blade Group table
3. Modify details of the blade system group per your requirements.
4. Click the **Add Blade System Group** button to save changes.

Deleting a server group

To delete a server group, complete the following steps:

1. On the Select Server/Blade window, click the **Server group** tab to view the server group details.
2. Select an added server group you want to delete. You can select the server group in one of the following ways:
 - From the Server group drop-down list
 - From the Server Group table
3. Click the **Delete Server Group** button to delete the server group from your SAN.

Deleting a blade system group

To delete a blade system group, complete the following steps:

1. On the Select Server/Blade window, click the **Blade system group** tab to view the blade system group details.
2. Select an added blade system group you want to delete. You can select the blade system group in one of the following ways:
 - From the Blade system group drop-down list
 - From the Blade Group table
3. Click the **Delete Blade System Group** button to delete the blade system group from your SAN.

Specifying storage details

The Select Storage window displays the storage details of your SAN. [Figure 8](#) shows the Select Storage window.

The Select Storage window enables you to add, modify, and delete a storage group.

After entering storage details, click **Next** to enter fabric details.

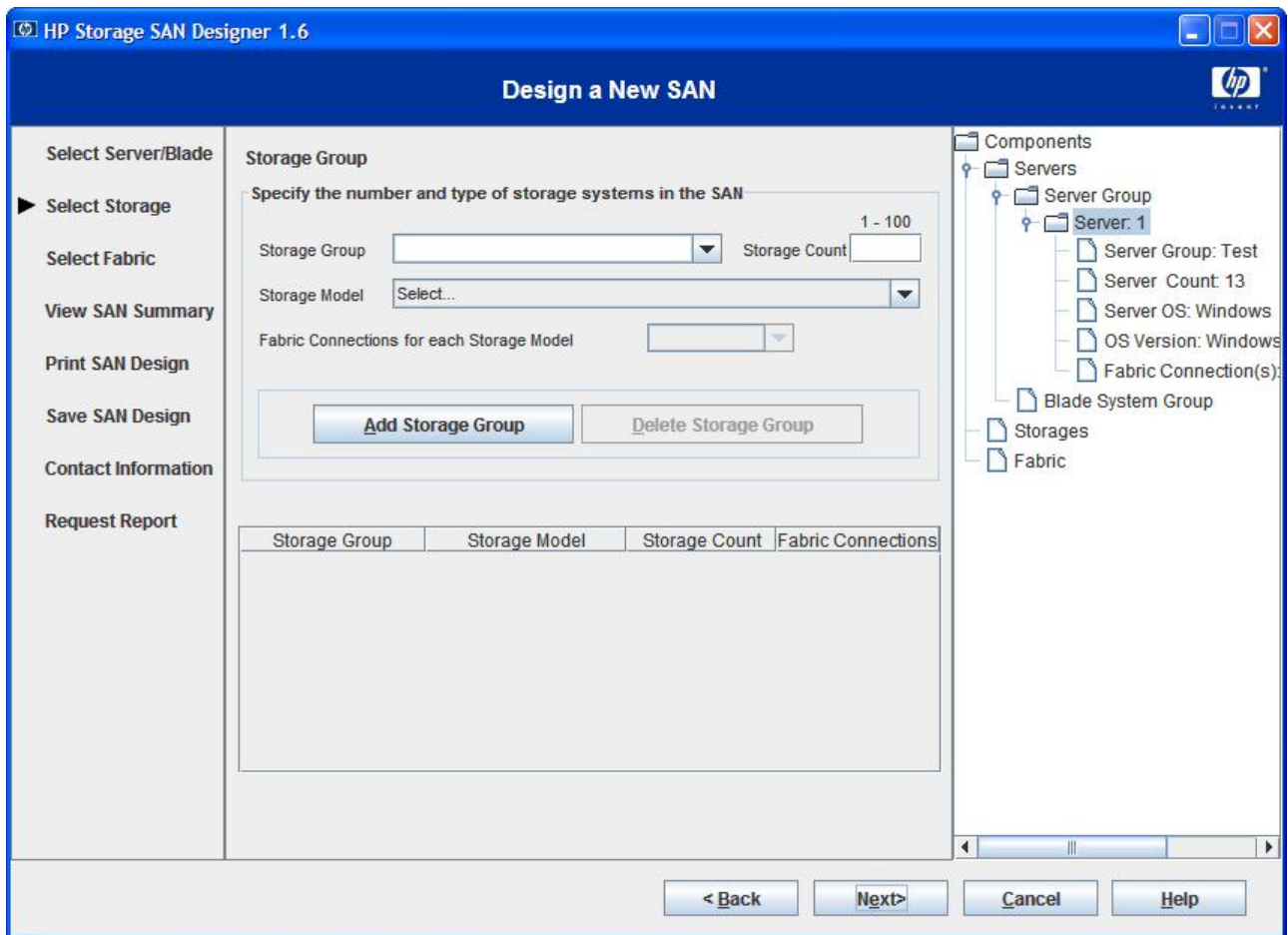


Figure 8 Select Storage window

Adding a storage group

To add a storage group, complete the following steps:

1. Enter a convenient name (optional) of the storage group in the **Storage Group** box.
2. Enter the number of storage devices in this group in the **Storage Count** box. The number must be between 1 and 100.
3. Select the storage model from the **Storage Model** drop-down list.
If required, select the number of fabric connections for each server in the **Fabric Connections for each Storage Model** drop-down list.
4. Click the **Add Storage Group** button to add this group.
The storage group is listed in the storage group table.



NOTE:

A Director switch may be picked up based on the value against **Fabric Connections for each Storage Model** field in **Select Storage** tab.

Modifying a storage group

To modify a storage group, complete the following steps:

1. Select a previously added storage group you want to modify. You can select the storage group in one of the following ways:
 - From the Storage Group drop-down list
 - From the Storage Group table
2. Modify details of the storage group per your requirements.
3. Click the **Add Storage Group** button to save changes.

Deleting a storage group

To delete a storage group, complete the following steps:

1. Select an added storage group you want to delete. You can select the storage group in one of the following ways:
 - From the Storage Group drop-down list
 - From the Storage Group table.
2. Click the **Delete Storage Group** button to delete the storage group.

Specifying fabric details

The Select Fabric window displays the fabric details of your SAN. [Figure 9](#) shows the Select Fabric window.

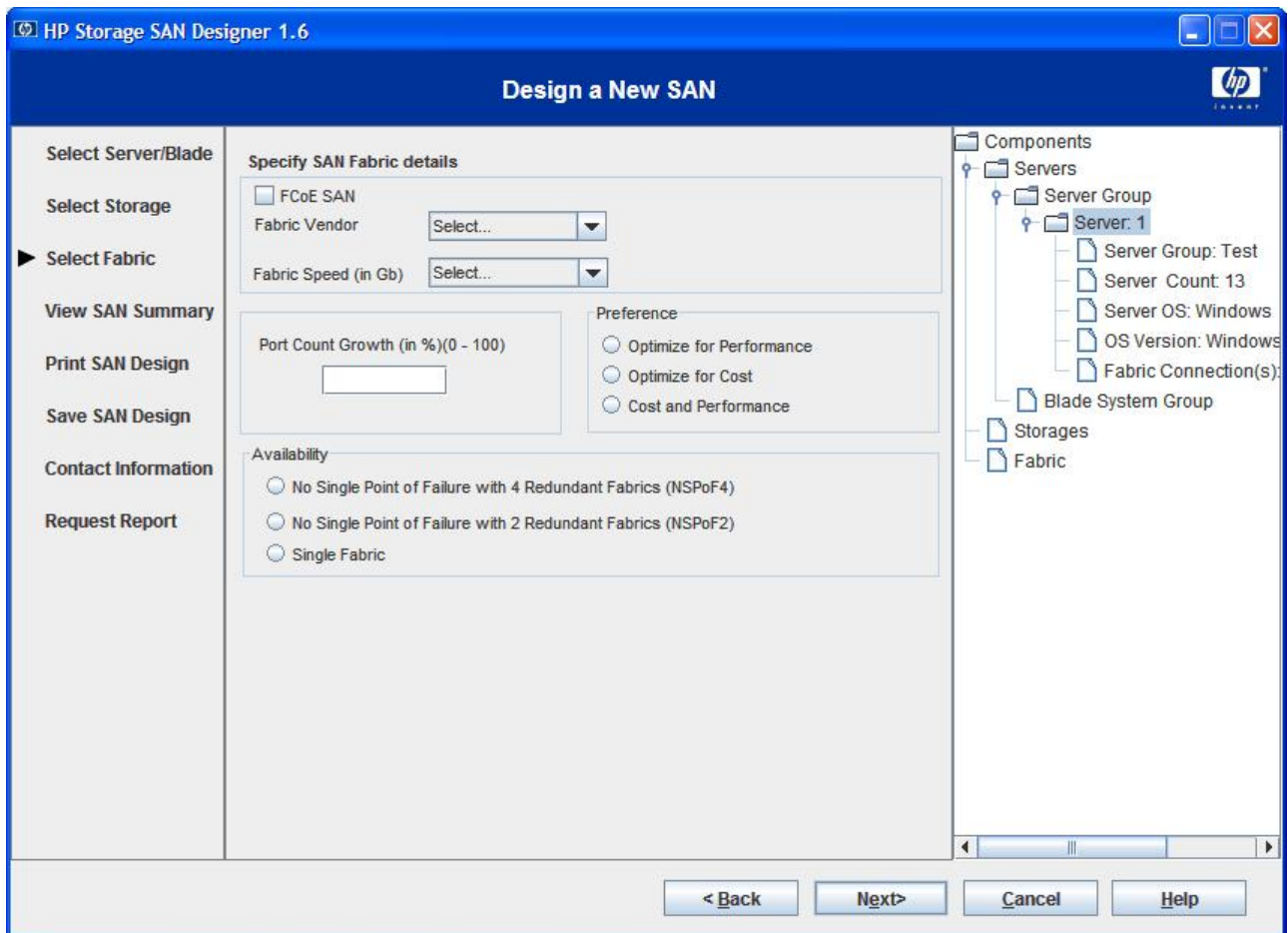


Figure 9 Select Fabric window

To specify fabric details, complete the following steps:

1. Select **FCoE SAN** to design a FCoE SAN using FCoE switches connected to the host.
2. From the **Fabric Vendor** drop-down list, select the fabric for your SAN.

SAN Designer supports switches from the following vendors:

- H-Series
- Brocade
- Cisco



NOTE:

- Selecting the FCoE SAN disables the Blade system group tab in the Select Server/Blade window.
- H-Series, B-Series, or C-Series switch lists only the suitable switch operating systems and storage models in the Select Server/ Blade and the Select Storage windows.

3. Select the fabric speed from the **Fabric Speed (in Gb)** list.
4. Enter the port count growth in percentage in the **Port Count Growth** box. The number must be between 1 and 100. Port count growth is the estimated additional fabric port requirements for future needs.

5. In the **Preference** panel, select one of the following options:
 - **Optimize for Performance**
Select this option if you want to optimize your SAN for performance.
 - **Optimize for Cost**
Select this option if you want to optimize your SAN for cost.
 - **Cost and Performance**
Select this option if you want to design your SAN based on both cost and performance.
6. In the **Availability** panel, select one of the following options based on the level of redundancy for your fabric:
 - **No Single Point of Failure with 4 Redundant Fabrics (NSPoF4)**
 - **No Single Point of Failure with 2 Redundant Fabrics (NSPoF2)**
 - **Single Fabric**

 NOTE:

The component tree on the right panel of the SAN Designer application screen is updated as per the inputs provided in the Select Server/Blade, Select Storage and Select Fabric windows.

There could be scenarios when SAN Designer throws an error message as shown in [Figure 10](#).

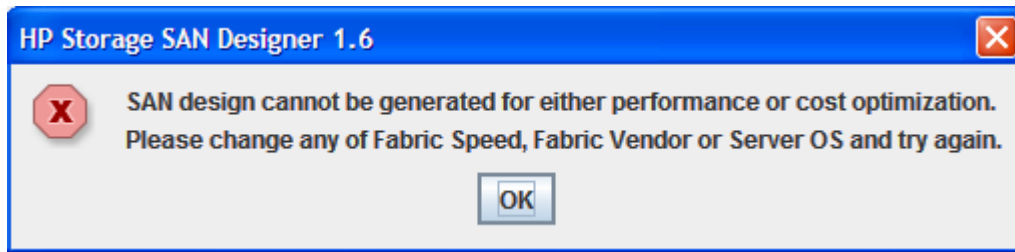


Figure 10 SAN Design Generation Error

For a given host and array combination, SAN Designer tries to find a switch with the same speed and series as selected by the user and that is compatible with the hosts and arrays. If it fails to find such a switch, this message pops up. In this case, first change the Switch speed and try again. If this does not work, change the Switch Series. If even this does not work, different combinations of arrays and hosts have to be tried.

After entering fabric details, click **Next** to view your SAN summary. The View SAN Summary window is displayed.

Viewing SAN summary

The SAN Summary window provides a summary of the SAN. [Figure 11](#) shows the View SAN Summary window.

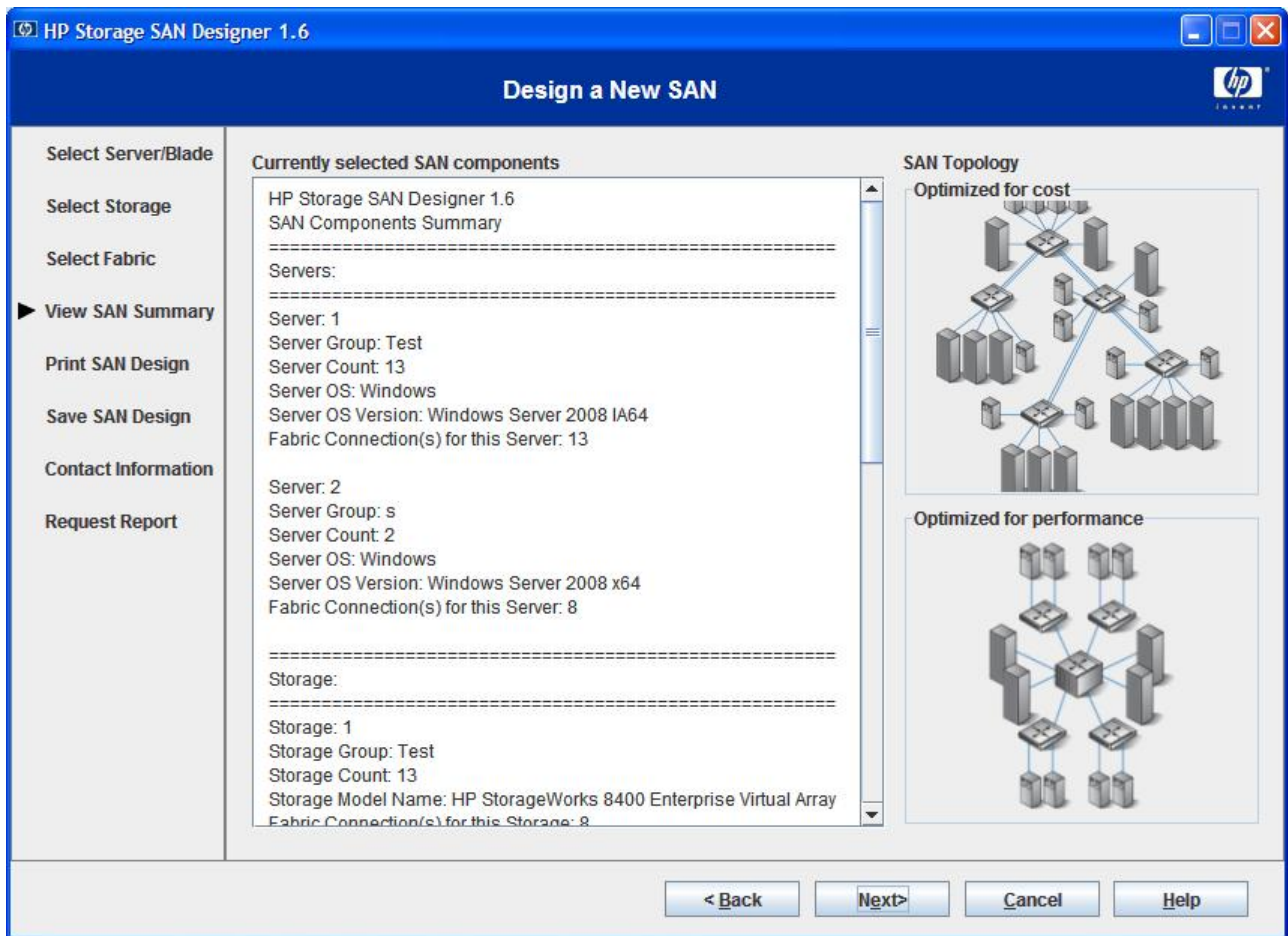


Figure 11 View SAN Summary window

The View SAN Summary window displays the following:

- Summary of information about servers, storage, and fabric in the **Currently selected SAN components** section.
- A graphical depiction of the SAN topology in the SAN Topology section.
- HP Storage SAN design reference guide version used to design the SAN.

Click **Next** to continue. The Print SAN Design window is displayed.

Printing a SAN design

The Print SAN Design window enables you to print your SAN design. [Figure 12](#) shows the Print SAN Design window.

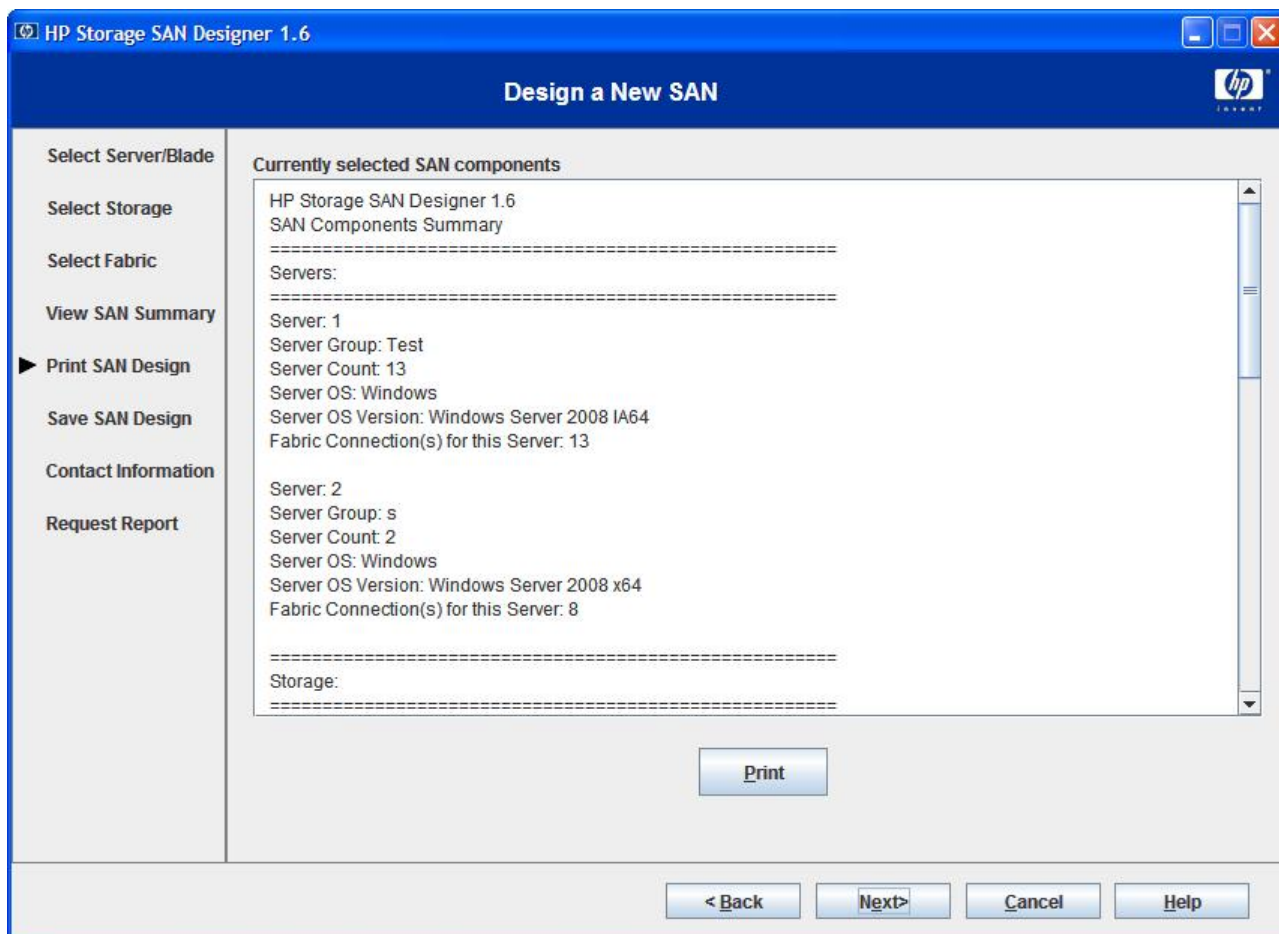


Figure 12 Print SAN Design window

The Print SAN Design window displays the summary of the SAN design. To print this information, click the **Print** button.

Click **Next** to continue. The Save SAN Design window is displayed.

Saving a SAN design

The Save SAN Design window enables you to save the SAN design. Details of servers, storage, and fabric are saved in a `.conf` file. [Figure 13](#) shows the Save SAN Design window.

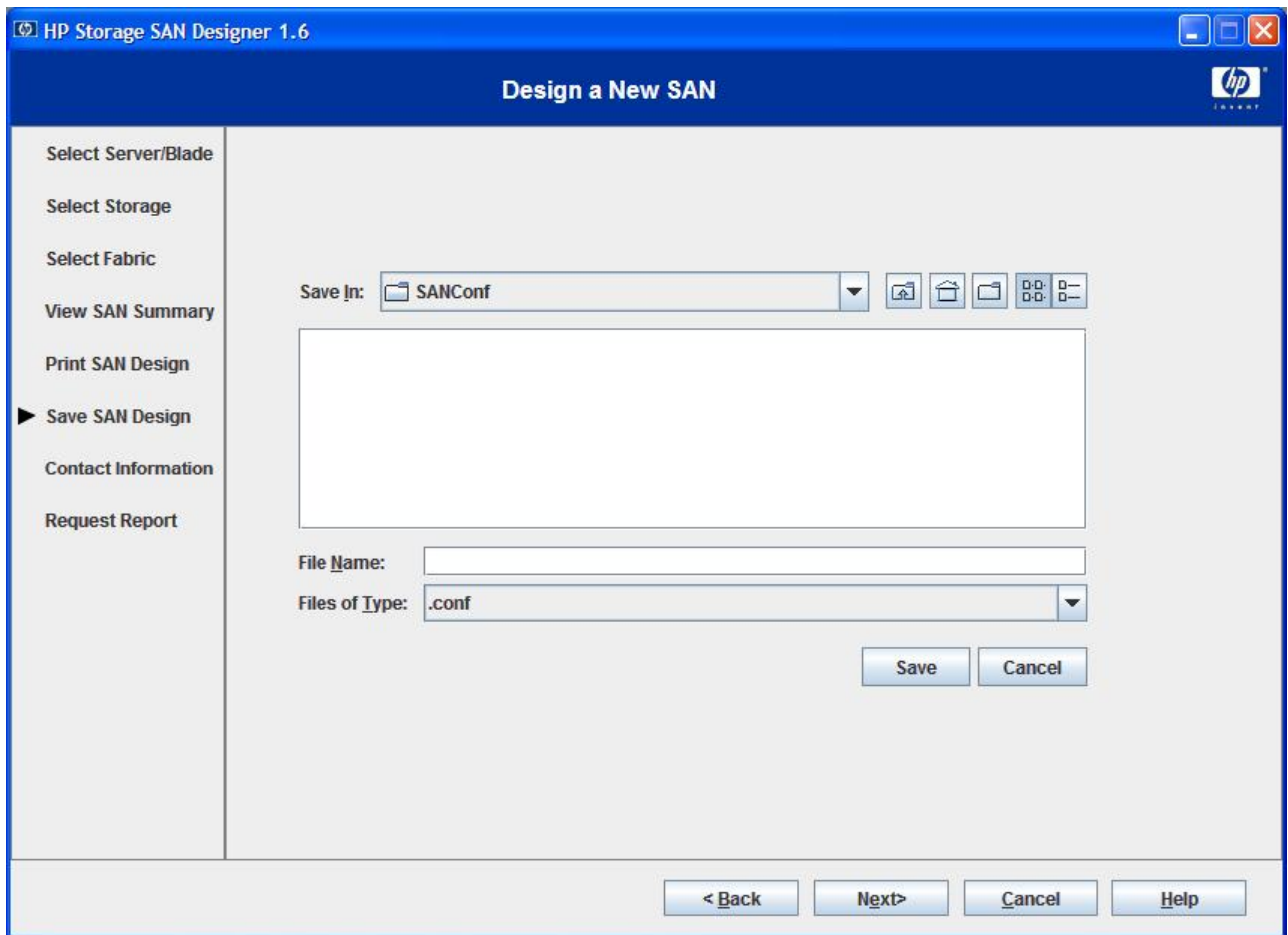


Figure 13 Save SAN Design window

Enter a name for your SAN design, and click the **Save** button to save your SAN design.

By default, all SAN designs are saved in the following folder:

<Install_Dir>\SANConf

Click **Next** to continue. The Contact Information window is displayed.

Specifying contact information

The Contact Information window enables you to specify your contact information. These details are part of the processed report. [Figure 14](#) shows the Contact Information window.

Figure 14 Contact Information window

To specify your contact information, complete the following steps:

1. Enter your contact information in the **Customer Details** section.
2. Enter your SMTP server address in the **E-Mail Information** section.

Select the **Detect SMTP server automatically** option if you want to automatically detect the SMTP server address from your email specified in the **Customer Details** section.

If the SMTP server information is not available, HP Storage SAN Designer selects the default mail client to send the SAN design information to HP.

 NOTE:

Ensure that the email address specified is accurate. HP Storage SAN Designer reports are sent to this email address.

3. Select appropriate options if you want to receive additional information, such as special offers, product information, event, etc. from HP.

Click **Next** to continue. The Request Report window is displayed.

Requesting reports

SAN Designer enables you to send your SAN design requirements to HP for analysis. Information about your SAN design requirements is stored in a .hpsd file. This file is available in the following folder:

```
<Install_Dir>\reports
```

A detailed SAN design, along with a detailed list of SAN components, is mailed back to the email address specified in the Contact Information window. It may take up to 2 business days to receive a detailed SAN design report. [Figure 15](#) displays the Request Report window.

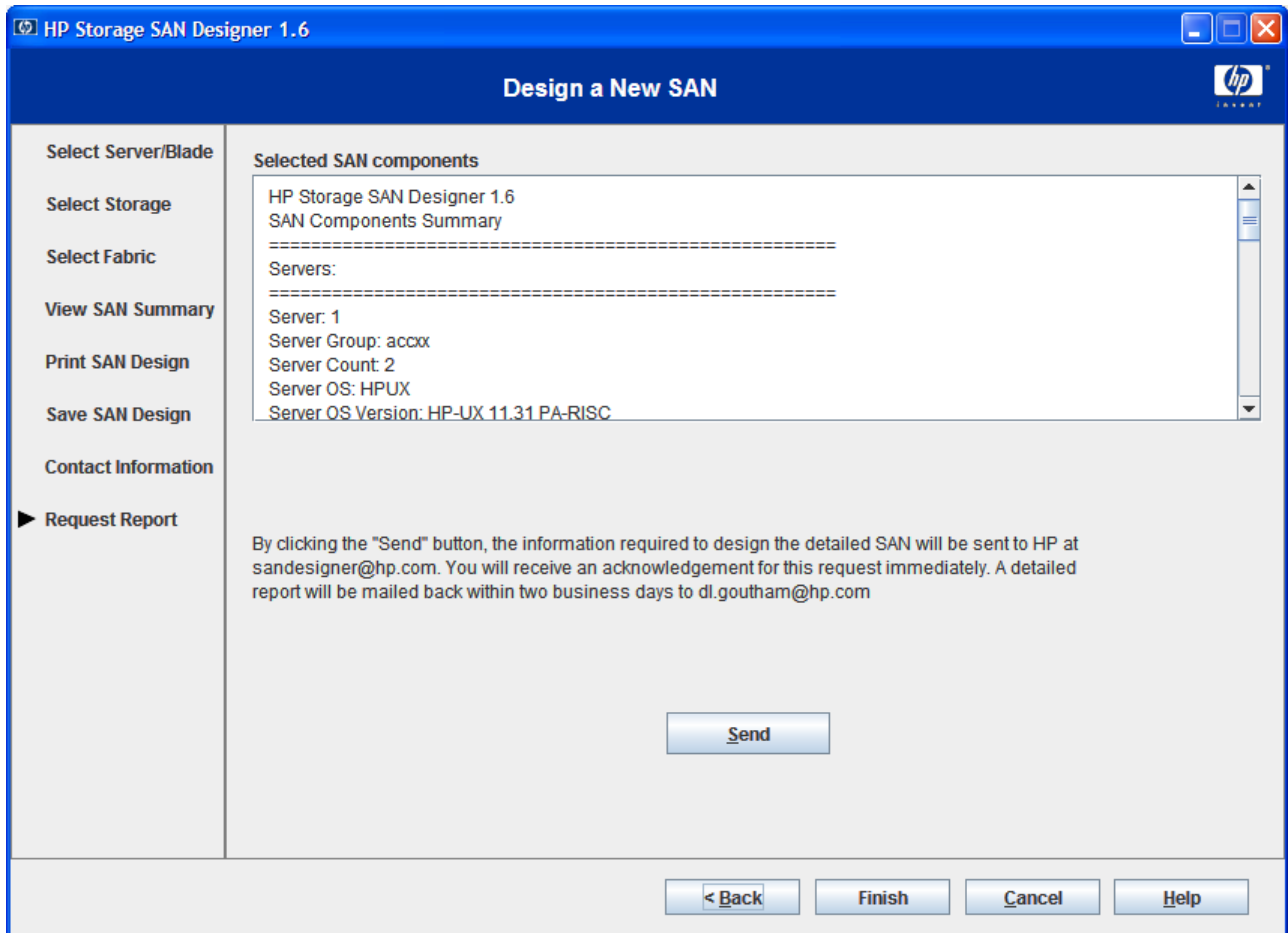


Figure 15 Request Report window

Click the **Send** button to send your SAN design requirements to HP for processing. On receipt of your SAN design requirements, HP sends an automated response to the email address specified in the Contact Information window.

If the SMTP server information is not available in the Contact Information window, SAN Designer selects the default mail client to send the email. Attach your archived and encrypted design requirements (i.e. the .hpsd file from the reports folder) to the email client and send it to: sandesigner@hp.com.

**NOTE:**

If you do not receive an automated response, verify the email address specified in the Contact Information window, and send your report again.

After selecting the SMTP checkbox in the Customer Panel and clicking on the Send button in the Request Report Panel, if the tool runs into any error, then it pops up a dialog asking if you want to launch the default mail Client.

Viewing reports

HP processes the SAN design data, and sends you a report as an email attachment. The report is saved as a .hppd file.

**NOTE:**

To view a processed report, you must open the report on a system that has SAN Designer software installed.

To view a processed report, complete the following steps:

1. Double click the email attachment, and click **Open** to open the email attachment. [Figure 16](#) shows the Opening Mail Attachment window.

**NOTE:**

To save the email attachment in your computer, double click the email attachment, and click **Save**.

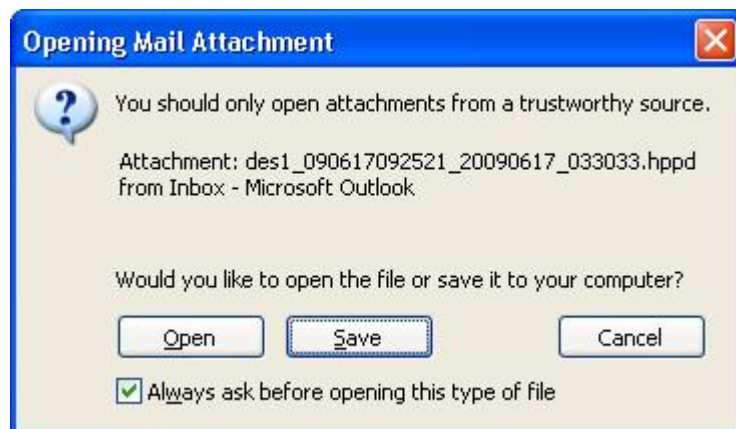


Figure 16 Open Mail Attachment window

2. Click the **OK** button to decrypt the SAN Designer report. [Figure 17](#) shows the Decrypting Processed Report window.

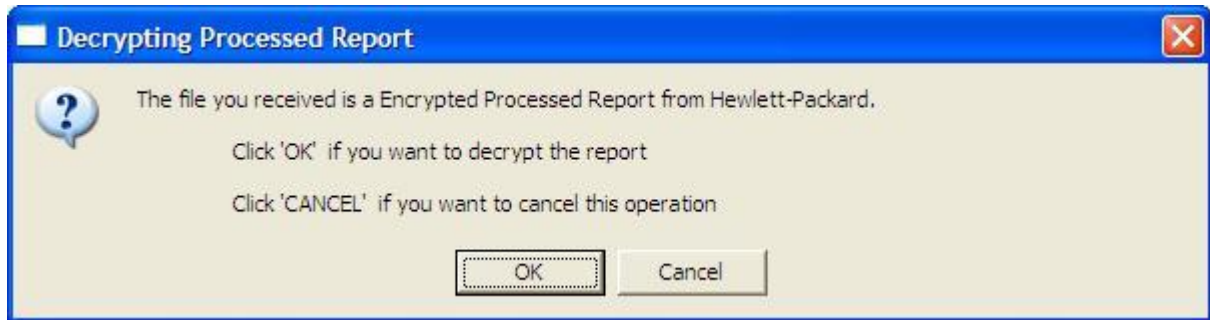


Figure 17 Decrypting Processed Report window

3. Click the **OK** button to confirm and choose a destination folder to place the extracted processed report. [Figure 18](#) shows the Decrypting Processed Report confirmation window.

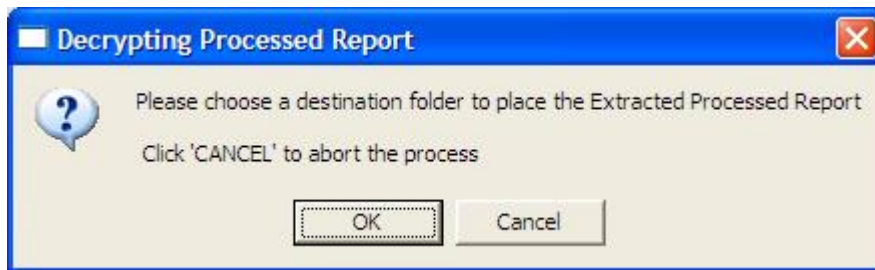


Figure 18 Decrypting Processed Report confirmation window

4. Browse and select a destination folder to save the extracted report, and click **OK**. Figure 19 shows the Browse for Folder window.

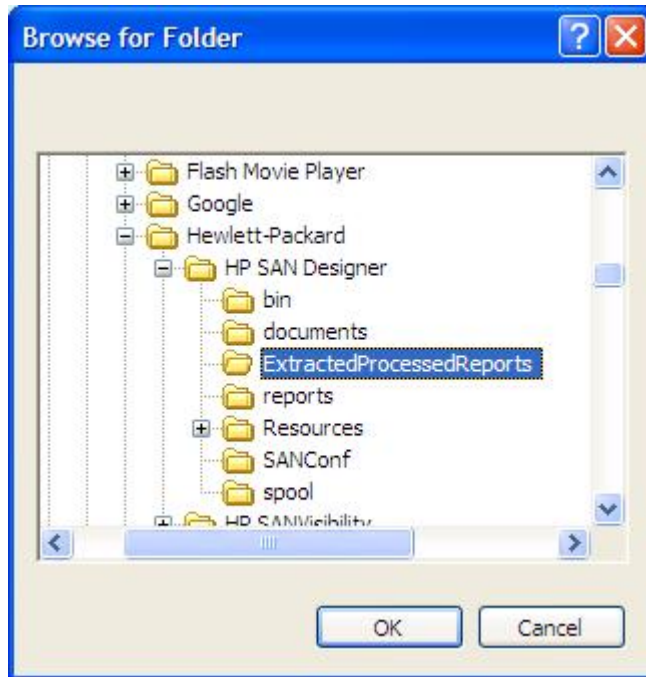


Figure 19 Browse for Folder window

By default, processed reports are saved in the following location:

<Install_Dir>\ExtractedProcessedReports

Following are the components of the report:

- A Microsoft Excel file that contains information about components of your SAN
- A Microsoft Visio file that contains your SAN design

Exiting from SAN Designer

To exit from SAN Designer, complete the following steps:

1. Click the **Finish** button to close the HP Storage SAN Designer window.
2. Click the **Exit** button to exit from HP Storage SAN Designer.

4 Troubleshooting

This chapter describes the error codes that are displayed while using the SAN Designer software.

Table 2 lists error codes, their description, and troubleshooting information.

Table 2 Error codes, cause, and action

Error	Cause	Action
RulesViolation-0001	Some of the servers do not connect to all the redundant fabrics you are requesting.	Increment the HBA connections from server to support the desired redundancy level, or change the choice of availability based on the redundancy level.
RulesViolation-0002	Some storage devices do not connect to all the redundant fabrics you are requesting.	Increment the fabric connections from storage to achieve the desired redundancy level, or change the choice of availability based on the redundancy level.
RulesViolation-0003	Some servers and storage do not connect to all the redundant fabrics you are requesting.	Increment the fabric connections from storage and server to the desired redundancy level, or change the choice of availability based on the redundancy level.
RulesViolation-0004	There is a limitation for the host/storage ports count for the SAN to generate the design.	Reduce the number of host/storage ports
Mailer-0004	The EArch.exe file is either missing in /bin folder, or it is corrupt.	Run the SANDesigner1.3_Setup.exe setup executable file, and choose Repair - Reinstall all features installed to reinstall HP Storage SAN Designer.
Mailer-0005	The default mail client does not exist, or SAN Designer is unable to open it.	Check the availability and execution permission for the default mail client.
Mailer-0006	The SMTP server IP address is incorrect, or SAN Designer is unable to connect to the SMTP server.	Verify if the SMTP server entry is correct and is accessible. If SMTP server is not accessible, attach and send the SAN design requirements to: sandesigner@hp.com by email.

For any questions or feedback, send an email to: sandesigner@hp.com with the subject as: HP SAN Designer Query.

For further information, contact HP or visit Servers & Storage expertise center website at: <http://www.hp.com/sbso/serverstorage/index.html>.

5 Support and other resources

Contacting HP

For worldwide technical support information, see the HP support website:

<http://www.hp.com/support>

Before contacting HP, collect the following information:

- Product model names and numbers
- Technical support registration number (if applicable)
- Product serial numbers
- Error messages
- Operating system type and revision level
- Detailed questions

Subscription service

HP recommends that you register your product at the Subscriber's Choice for Business website:

<http://www.hp.com/go/e-updates>

After registering, you will receive e-mail notification of product enhancements, new driver versions, firmware updates, and other product resources.

Related information

Documents

The following documents provide related information:

- HP Storage SAN Designer Release Notes

You can access the SAN Designer help by clicking the **Help** button within the HP Storage SAN Designer graphical user interface (GUI).

You can find these documents from the Manuals page of the HP Business Support Center website:

<http://www.hp.com/support/manuals>

Websites

For additional information, see the following HP websites:

- <http://www.hp.com>
- <http://www.hp.com/go/storage>
- <http://www.hp.com/support/manuals>

- <http://www.hp.com/sbso/serverstorage/index.html>
- <http://h18006.www1.hp.com/storage/networking/sansolutions.html>
- <http://h18006.www1.hp.com/products/storageworks/san/index.html>

Documentation feedback

HP welcomes your feedback.

To make comments and suggestions about product documentation, please send a message to: "storagedocsFeedback@hp.com". All submissions become the property of HP.

Typographic conventions

Table 3 Document conventions

Convention	Element
Blue text: Table 3	Cross-reference links and e-mail addresses
Blue, underlined text: http://www.hp.com	Website addresses
Bold text	• Keys that are pressed • Text typed into a GUI element, such as a box • GUI elements that are clicked or selected, such as menu and list items, buttons, tabs, and check boxes
<i>Italic</i> text	Text emphasis
Monospace text	• File and directory names • System output • Code • Commands, their arguments, and argument values
<i>Monospace, italic</i> text	• Code variables • Command variables
Monospace, bold text	Emphasized monospace text

WARNING!

Indicates that failure to follow directions could result in bodily harm or death.

CAUTION:

Indicates that failure to follow directions could result in damage to equipment or data.

 IMPORTANT:

Provides clarifying information or specific instructions.

 NOTE:

Provides additional information.

 TIP:

Provides helpful hints and shortcuts.

Glossary

This glossary defines terms used in this guide or related to this product and is not a comprehensive glossary of computer terms.

Fabric	A contiguous switched network composed of high-speed fiber connections. Each fabric is a single instantiation of the fabric services. A fabric is an active and intelligent non-shared interconnect scheme for nodes.
FCoE	Fibre Channel over Ethernet (FCoE) is a mapping of Fibre Channel frames over lossless Ethernet networks. This storage networking protocol provides the benefit of Fibre Channel (FC) frames in Ethernet environment allowing I/O consolidation.
HBA	A Host Bus Adapter is an I/O device that serves as the interface connecting a host system to the SAN (Storage Area Network).
SAN	Storage Area Network with one or more fabrics. A configuration of networked devices for storage.
SMTP	Simple Mail Transfer Protocol. A protocol used in TCP/IP networks for sending and receiving email.
Storage array	A storage system consisting of one or more storage controllers and the disk drives they manage.
Topology	An interconnection scheme that allows multiple servers and storage devices to communicate. Arbitrated loop and switched fabric are examples of Fibre Channel topologies.

Index

B

- blade group
 - adding, 16
 - modifying, 19

C

- contact, 26
- contacting HP, 35
- conventions
 - document, 36
 - text symbols, 36

D

- disk space, 7
- document
 - conventions, 36
 - prerequisites, 7
 - related information, 35
- documentation
 - HP website, 35
 - providing feedback, 36
- download, 10

F

- fabric, 21
- supported, 22

H

- help
 - obtaining, 35
- HP
 - technical support, 35

I

- installing SAN Designer, 10

O

- obsolete
 - SAN components, 13
- opening, 12

- operating system, 10
- optimize
 - cost, 23
 - cost and performance, 23
 - performance, 23

P

- prerequisites, 7

R

- related documentation, 35
- removing SAN Designer, 10
- repairing SAN Designer, 10
- requirements
 - hardware, 7
 - software, 7

S

- SAN design
 - view report, 29
- SAN design, 11
 - modify, 12
 - print, 24
 - request report, 28
 - save, 25
 - view, 12, 24
- SAN summary, 23
- SAN topology, 24
- server, 14
- server group
 - adding, 15
 - deleting, 19
 - modifying, 18
- storage, 19
- storage group, 19
 - adding, 20
 - deleting, 21
 - modifying, 21
- Subscriber's Choice, HP, 35
- symbols in text, 36

T

technical support

HP, [35](#)

service locator website, [35](#)

text symbols, [36](#)

troubleshoot

error codes, [33](#)

typographic conventions, [36](#)

U

unsupported

SAN components, [13](#)

upgrading SAN Designer, [10](#)

Using SAN Designer, [11](#)

W

websites

HP , [35](#)

HP Subscriber's Choice for Business, [35](#)

product manuals, [35](#)